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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/565,372

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EXAMINER

ESTREMSKY, SHERRY LYNN

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/565,372	Applicant(s) TERAI, HIROMU	
	Examiner Sherry L. Estremsky	Art Unit 3681	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

2. The disclosure is objected to because of the following informalities: in line 4 of paragraph [0063], it appears "mechanism 38" should be --mechanism 37--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 6, 7, 11-13, and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Claim 6 inaccurately claims the disclosed invention in claiming that the fourth gear gearset is positioned farthest from the engine. The fifth gear gearset is disclosed as being positioned furthest from the engine. Since the fourth gear gearset is the gearset furthest from the engine of the second gearsets associated with the second gearbox speed grouping, it is assumed that this is what is being claimed for the purpose of this action. Note that if this assumption is correct, the claim should be amended to claim that the gearset of the second gearsets positioned furthest from the engine is a fourth gear gearset, since this gearset (the farthest of the second gearsets from the engine) has already been claimed in claim 1 and claim 6 is further identifying it.

Claim 7 appears to incorrectly claim a second gearset, "a sixth gear gearset" being positioned closest to the engine in addition the one claimed in claim 1. The claim should be amended to claim that the gearset positioned closest to the engine is a sixth gear gearset to clarify that claim 7 is further identifying the gearset already claimed in claim 1, rather than claiming an additional gearset.

In claims 11 and 12, it is not clear how "specialized" is limiting the interlocking mechanism, so that it is not clear what feature of the disclosed invention is being claimed by "specialized interlocking mechanism".

In claim 12 as in claim 7, it appears the fourth gear gearset and the sixth gear gearset are being claimed in addition to the farthest and closest gearsets previously claimed. The claim should be amended to identify that the farthest and the closest gearsets are the fourth gear and sixth gear gearsets, respectively.

In claim 20, it is not clear which shafts are "the first and second shafts". For the purpose of this action, it is assumed that this is referring to the first and second input shafts.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Soeda, U. S. Patent 7,243,565.

Soeda shows in figure 1 a twin-clutch manual gearbox for an engine.

Engine rotation is selectively input to a first input shaft 5 and a second input shaft 6 via individual clutches C1 and C2. The second input shaft 6 is rotatably fitted onto the first input shaft 5 so that the first input shaft 5 protrudes from a rearward end (right in the figure) of the second input shaft 6 farthest from the engine.

First gearsets G1, GR, G3, and 19/20 are associated with a first gearbox speed grouping, the first gearsets being located between the rearward end of the protruding first input shaft 5 and a layshaft 15 located substantially parallel to the first and second input shafts such that appropriate transmission is enabled for respective ones of the first gearsets.

Second gearsets G6, G2, and G4 are associated with a second gearbox speed grouping, the second gearsets being located between the second input shaft 6 and the layshaft 15 such that appropriate transmission is enabled for respective ones of the second gearsets, whereby rotation according to a selected gear after a gearchange is output in an axial direction from a rearward end of the first input shaft 5 or of the layshaft 15.

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The second gearsets are positioned such that the gearset G4 associated with the lowest gearbox speed of the second gearbox speed grouping capable of providing a bearing retaining space between the first input shaft 5 and the second input shaft 6 is positioned so as to be the farthest from the engine (fourth gear gearset is situated farthest from the engine to accommodate needle bearing 8 between the input shafts; column 6, lines 8-16). The gearset G6 associated with the highest gearbox speed of the remaining gearbox speeds of the second gearbox speed grouping is positioned so as to be closest to the engine.

(claim 1)

The second input shaft 6 is hollow for receiving a forward end (left in the figure) of the first input shaft 5, thereby to define the bearing retaining space therebetween for housing a bearing 8 for a gearset of the second gearbox speed grouping.

(claim 2)

The second gearbox speed grouping includes a further gearset G2 associated with a gearbox speed (second speed) intermediate the lowest (first speed) and highest (sixth speed) gearbox speeds, and the further gearset G2 being positioned intermediate the gearset G1 associated with the lowest gearbox speed and the gearset G6 associated with the highest gearbox speed.

(claims 3 and 17)

The second gearsets associated with the remaining gearbox speeds of the second gearbox speed grouping are further positioned in accordance with the following criteria: (i) between a gearset associated with a gearbox speed positioned farthest from the engine and a gearset associated with a gearbox speed positioned closest to the engine and (ii) in such a manner that gearsets associated with higher gearbox speeds are positioned closer to the engine (column 6, lines 30-37).

(claims 4 and 18)

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The gearsets G6, G2, and G4 of the second gearbox speed grouping provided between the second input shaft 6 and the layshaft 15 form an even-numbered gearbox speed grouping.
(claims 5 and 19)

The first and second input shafts 5 and 6 and the layshaft 15 constitute a shaft arrangement, the twin-clutch manual gearbox further comprising at least one interlocking mechanism 38 for enabling, respectively, appropriate transmission of gearsets associated with the second gearbox speed grouping.
(claims 20 and 9) - treated here due to claim 20 being dependent on claim 2.

The gearset of the second gearsets furthest from the engine is a fourth gear gearset G4.
(claim 6)

The gearset positioned closest to the engine is a sixth gear gearset G6, and a second gear gearset G2 is positioned intermediate the fourth and sixth gear gearsets G4 and G6.
(claim 7)

The first gearsets G1, G3, and 19/20 of the first gearbox speed grouping form an odd-numbered gearbox speed grouping (first, third, and fifth).
(claim 8)

A plurality of interlocking mechanisms 37, 38 enables, respectively, appropriate transmission of gearsets associated with the second gearbox speed grouping, wherein the plurality of interlocking mechanisms 37, 38 is provided between the second input shaft 6 and the layshaft 15 on a layshaft side of the shaft arrangement.
(claim 10)

Interlocking mechanism 37 is a specialized interlocking mechanism for enabling appropriate transmission of the gearset G6 positioned closest to the engine, and the specialized

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interlocking mechanism 37 is positioned between the gearset G6 positioned closest to the engine and a gearset G2 positioned adjacent to the gearset.

(claim 11)

The second gearsets associated with the second gearbox speed grouping form a grouping of a second gear gearset G2, a fourth gear gearset G4, and a sixth gear gearset G6, wherein the gearset positioned on the side of the layshaft farthest from the engine is the fourth gearset G4, the gearset positioned on the side of the layshaft closest to the engine is the sixth gearset G6, and the second gear gearset G2 is positioned in between the fourth and sixth gear gearsets. An interlocking mechanism 38 common to the second gear gearset G2 and the fourth gear gearset G4 is positioned between the second gear gearset and the fourth gear gearset, and a specialized interlocking mechanism 37 for the sixth gear gearset is positioned between the second gear gearset and the sixth gear gearset.

(claim 12)

The sixth gear gearset G6 comprises, in mutually interlocking manner, a sixth gear input gear 30 which is formed as one unit onto an outer diameter of the second input shaft 6, and a sixth gear output gear 31 which is rotatably provided on the layshaft 15, the second gear gearset G2 comprises, in mutually interlocking manner, a second gear input gear 32 which is formed as one unit onto the outer diameter of the second input shaft 6, and a second gear output gear 33 which is rotatably provided on the layshaft 15, and the fourth gear gearset G4 comprises, in a mutually interlocking manner, a fourth gear input gear 34 which is formed as a single unit onto the outer diameter of the second input shaft 6 and a fourth gear output gear 35 which is rotatably provided on the layshaft 15.

(claim 13)

As shown in figure 2, the layshaft 15 has a maximum diameter approximately at a midway point.

(claim 14)

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The midway point is at a position equivalent to a boundary between the second gearsets and the first gearsets.

(claim 15)

Soeda discloses a vehicle having an engine fitted with the twin-clutch manual gearbox (column 2, lines 50-52).

(claim 16)

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U. S. Patent 4,658,663 (Hiraiwa) April 1987 - discloses a twin-clutch transmission in which a relatively small, though not the smallest, of the speed gears of the second gearsets is farthest from the engine. The disclosed bearings are not between the two input shafts.

U. S. Patent 7,249,532 (Ruedle) July 2007 - discloses a twin-clutch transmission in which both the lowest speed gearset of the second gearset and a bearing between the two input shafts are furthest from the engine.

U. S. Patent 7,258,032 (Kim) August 2007 - discloses a twin-clutch transmission with the second group of gearsets being positioned in the order of sixth gear gearset, second gear gearset, and fourth gear gearset from closest to the engine to farthest from the engine.

U. S. Patent 7,313,981 (Gumpoltsberger) January 2008 - discloses a twin-clutch transmission in which both the lowest speed gearset of the second gearset and a bearing between the two input shafts are furthest from the engine.

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The following each disclose a twin-clutch transmission in which the smallest speed gearset of the second gearsets is positioned farthest from the engine:

U. S. Patent 6,675,668 (Schamscha) January 2004

U. S. Patent 7,056,264 (Kupper et al.) June 2006

U. S. Patent 7,225,696 (Gitt) June 2007

U. S. Patent Application Publication 2002/0189383 (Schamscha) December 2002

U. S. Patent Application Publication 2005/0115344 (Kim) June 2005.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sherry L. Estremsky whose telephone number is (571) 272-7090. The examiner can normally be reached on Monday and Thursday from 7:00 a.m. to 5:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Marmor can be reached on (571) 272-7095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sherry L. Estremsky/

Primary Examiner, Art Unit 3681

SLE